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# Inorganic Chemicals: 2003

## *Summary*

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SUMMARY OF FINDINGS

Alkalies and chlorine (NAICS 325181) production decreased 8.4 percent to 32,007.1 thousand short tons in 2003, from 34,956.4 thousand short tons in 2002. Chlorine (NAICS 3251811) production decreased 9.5 percent to 21,196.9 thousand short tons in 2003, from 23,419.4 thousand short tons in 2002. Sodium hydroxide (NAICS 3251814111) production decreased 7.0 percent to 9,695.5 thousand short tons in 2003, from 10,429.0 thousand short tons in 2002. Finished sodium bicarbonate (NAICS 3251817131) production increased 0.9 percent to 595.6 thousand short tons in 2003, from 590.1 thousand short tons in 2002.

Titanium dioxide (NAICS 3251311) production increased 0.9 percent to 1,568.0 thousand short tons in 2003, from 1,553.5 thousand short tons in 2002.

Hydrochloric acid (NAICS 3251884125, 4131) production increased 3.8 percent to 4,608.2 thousand short tons in 2003, from 4,439.8 thousand short tons in 2002. Aluminum sulfate, commercial (NAICS 3251887151) production decreased 8.8 percent to 1,059.5 thousand short tons in 2003, from 1,161.6 thousand short tons in 2002. Sodium sulfate, hight purity (NAICS 325188A1A1) production decreased 6.8 percent to 513.9 thousand short tons in 2003, from 551.2 thousand short tons in 2002. Sodium chlorate (NAICS 325188A141) production decreased 7.3 percent to 737.1 thousand short tons in 2003, from 794.9 thousand short tons in 2002.

For general CIR information, explanation of general terms and historical note, see the appendix.

Address inquiries concerning these data to Primary Goods Industries Branch, Manufacturing and Construction Division (MCD), Washington, DC 20233-6900, or call Mai Le, 301-763-4797.

For mail or fax copies of this publication, please contact the Information Services Center, MCD, Washington, DC 20233-6900, or call 301-763-4673.

U S C E N S U S B U R E A U

*Helping You Make Informed Decisions*

U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU

Table 1. Summary of Production of Principal Inorganic Chemicals
[Short tons]

| Quarter and year | Chlorine gas (100 percent) (3251811111) | Sodium hydroxide, total liquid (100 percent) (3251814111) | Titanium dioxide, commodity weight (3251311100) | Hydro-chloric acid (100 percent) (3251884125, 4131) | Aluminum sulfate commercial (17 percent Al2O3) (3251887151) | Sodium sulfate, high purity (100 percent Na2SO4) (325188A1A1) | Finished sodium bicarbonate (58 percent NaHCO3) (3251817131) | Sodium chlorate (100 percent) (325188A141) |
|---|---|---|---|---|---|---|---|---|
| **2003** | | | | | | | | |
| Total | 11,421,402 | 9,695,457 | 1,567,955 | 4,608,236 | 1,059,494 | 513,930 | 595,588 | 737,122 |
| Fourth quarter | 3,032,298 | 2,472,523 | 403,121 | 1,125,858 | 256,067 | 130,221 | 158,120 | 186,298 |
| Third quarter | 2,979,401 | 2,465,961 | 381,574 | 1,200,122 | 287,926 | 129,447 | 152,561 | 180,957 |
| Second quarter | 2,387,214 | 2,197,549 | 402,339 | 1,157,195 | 261,833 | 116,076 | 151,112 | 191,867 |
| First quarter | 3,022,489 | 2,559,424 | 380,921 | 1,125,061 | 253,668 | 138,186 | 133,795 | 178,000 |
| **2002** | | | | | | | | |
| Total | 12,607,878 | 10,428,994 | 1,553,513 | 4,439,721 | 1,161,595 | 551,171 | 590,116 | 794,861 |
| Fourth quarter | 3,047,726 | 2,472,361 | 393,156 | 1,088,766 | 274,551 | 145,898 | 154,321 | 210,860 |
| Third quarter | 3,338,696 | 2,665,802 | 395,943 | 1,155,774 | 331,575 | 138,096 | 153,164 | 184,170 |
| Second quarter | 3,104,734 | 2,660,721 | 400,633 | 1,117,049 | 307,161 | 134,796 | 147,424 | 189,611 |
| First quarter | 3,116,722 | 2,630,110 | 363,781 | 1,078,132 | 248,308 | 132,381 | 135,207 | 210,220 |

Table 2. Summary of Primary Production of Specified Inorganic Chemicals: 2003 and 2002
[Short tons, unless otherwise noted]

| Product code | Product description | 2003 Total production (quantity) | 2003 Total shipments, including interplant transfers: Quantity | 2003 Total shipments, including interplant transfers: Value | 2002 Total production (quantity) | 2002 Total shipments, including interplant transfers: Quantity | 2002 Total shipments, including interplant transfers: Value |
|---|---|---|---|---|---|---|---|
| | Chlorine and alkalies: | | | | | | |
| | Chlorine (100 percent): | | | | | | |
| 3251811111 | Gas 1/ | 11,421,402 | 7,853,291 | 1,106,330 | 12,607,878 | 9,490,421 | 803,587 |
| | Fourth quarter | a/ 3,032,298 | r/ 2,155,955 | a/r/ 286,509 | 3,047,726 | r/ 2,194,472 | 232,560 |
| | Third quarter | a/ 2,979,401 | 2,098,212 | a/r/ 287,158 | 3,338,696 | 2,488,310 | r/ 247,434 |
| | Second quarter | a/ 2,387,214 | a/r/ 1,528,697 | a/r/ 260,236 | a/ 3,104,734 | 2,543,470 | r/ 186,752 |
| | First quarter | a/ 3,022,489 | r/ 2,070,427 | a/r/ 272,427 | a/ 3,116,722 | 2,264,169 | r/ 136,841 |
| 3251811121 | Liquid | 9,775,514 | 9,212,425 | 1,368,896 | 10,811,561 | 10,585,415 | 963,600 |
| | Fourth quarter | a/ 2,553,926 | r/ 2,425,830 | a/ 344,710 | 2,565,207 | 2,499,123 | 295,661 |
| | Third quarter | a/ 2,589,585 | r/ 2,382,853 | a/ 342,298 | 2,878,023 | 2,801,686 | 303,674 |
| | Second quarter | a/ 2,024,404 | a/r/ 1,937,575 | a/ 337,081 | a/ 2,686,349 | 2,805,958 | 215,502 |
| | First quarter | a/ 2,607,599 | a/r/ 2,466,167 | a/ 344,807 | a/ 2,681,982 | 2,478,648 | 148,763 |
| 3251814111 | Liquid 2/ | 9,695,457 | (X) | (X) | 10,428,994 | (X) | (X) |
| | Fourth quarter | a/ 2,472,523 | (X) | (X) | a/ 2,472,361 | (X) | (X) |
| | Third quarter | a/ 2,465,961 | (X) | (X) | a/ 2,665,802 | (X) | (X) |
| | Second quarter | a/ 2,197,549 | (X) | (X) | a/ 2,660,721 | (X) | (X) |
| | First quarter | a/ 2,559,424 | (X) | (X) | a/ 2,630,110 | (X) | (X) |
| 3251817111 | Potassium hydroxide (caustic potash) (88 to 92 percent), liquid 2/ | 519,171 | 737,684 | 188,014 | 517,885 | (D) | 163,500 |
| | Fourth quarter | 132,586 | (D) | 48,685 | 142,250 | (D) | 44,685 |
| | Third quarter | 122,830 | (D) | (D) | 120,412 | (D) | 41,073 |
| | Second quarter | 135,329 | (D) | (D) | 126,324 | (D) | 41,258 |
| | First quarter | 128,426 | (D) | 48,509 | 128,899 | (D) | 36,484 |
| 3251817131 | Finished sodium bicarbonate (58 percent $NaHCO_3$) | 595,588 | 518,239 | 135,497 | 590,116 | (D) | (D) |
| | Fourth quarter | 158,120 | 131,847 | a/ 34,749 | 154,321 | (D) | (D) |
| | Third quarter | 152,561 | 131,144 | 34,327 | 153,164 | (D) | (D) |
| | Second quarter | 151,112 | (S) | (S) | 147,424 | (D) | (D) |
| | First quarter | 133,795 | (S) | (S) | 135,207 | (D) | (D) |
| 2123913111 | Sodium carbonate, natural (soda ash) (58 percent) 3/ | 11,718 | (X) | (X) | 11,388 | (X) | (X) |
| | Fourth quarter | 2,974 | (X) | (X) | 2,868 | (X) | (X) |
| | Third quarter | 2,954 | (X) | (X) | 2,824 | (X) | (X) |
| | Second quarter | 2,942 | (X) | (X) | r/ 2,870 | (X) | (X) |
| | First quarter | 2,848 | (X) | (X) | 2,826 | (X) | (X) |
| | Chlorine bleaches and other inorganic bleaching compounds: | | | | | | |
| 325188G1P4 | Industrial, liquid and dry | 352,593 | (S) | (S) | 392,141 | (S) | (S) |
| | Fourth quarter | (S) | (S) | (S) | (S) | (S) | (S) |
| | Third quarter | b/r/ 105,461 | (S) | (S) | b/ 116,968 | (S) | (S) |
| | Second quarter | (S) | (S) | (S) | (S) | (S) | (S) |
| | First quarter | (S) | (S) | (S) | (S) | (S) | (S) |
| | Acids: | | | | | | |
| | Hydrochloric (100 percent): | | | | | | |
| 3251884125 | From chlorine and hydrogen | 523,993 | (S) | r/ 46,550 | 367,689 | 217,406 | 34,726 |
| | Fourth quarter | 141,991 | (S) | b/r/ 12,117 | a/ 103,855 | b/ 60,449 | a/ 9,512 |
| | Third quarter | 130,750 | (S) | b/r/ 10,851 | b/ 91,082 | (S) | a/ 8,453 |
| | Second quarter | 127,000 | (S) | b/r/ 11,765 | b/ 82,442 | (S) | b/ 7,369 |
| | First quarter | 124,252 | (S) | b/r/ 11,817 | b/ 90,310 | b/ 56,699 | a/ 9,392 |
| 3251884131 | Byproduct and other 4/ | 4,084,243 | 2,773,327 | 141,590 | 4,072,032 | 2,816,544 | 134,580 |
| | Fourth quarter | a/ 983,867 | a/ 666,759 | b/r/ 33,630 | a/ 984,911 | a/ 663,917 | b/ 30,291 |
| | Third quarter | a/ 1,069,372 | a/ 715,452 | b/r/ 36,505 | a/ 1,064,692 | a/ 725,712 | b/ 32,786 |
| | Second quarter | a/ 1,030,195 | a/ 719,124 | b/r/ 36,391 | a/ 1,034,607 | a/ 745,927 | b/ 36,116 |
| | First quarter | a/ 1,000,809 | a/ 671,992 | b/r/ 35,064 | a/ 987,822 | a/ 680,988 | b/ 35,387 |
| 3251884141 | Hydrocyanic, including anhydrous (100 percent) | 350,099 | (D) | 109,691 | 526,686 | (D) | 97,769 |
| | Fourth quarter | b/r/ 83,684 | (S) | b/ 30,832 | a/ 135,938 | (D) | (D) |
| | Third quarter | b/r/ 77,149 | (S) | b/ 27,230 | a/ 162,562 | (D) | a/ 26,698 |
| | Second quarter | b/r/ 84,066 | (D) | (D) | a/ 140,816 | (D) | a/ 26,989 |
| | First quarter | b/r/ 105,200 | (D) | (D) | b/ 87,370 | (D) | (D) |
| | Aluminum oxide and aluminum compounds: | | | | | | |
| 3313110100 | Aluminum oxide (except natural alumina) (100 percent $Al_2O_3$) | (D) | (D) | (D) | (D) | (D) | 797,490 |
| | Fourth quarter | (D) | (D) | (D) | (D) | (D) | b/ 195,769 |
| | Third quarter | (D) | (D) | (D) | (D) | (D) | b/ 198,796 |
| | Second quarter | (D) | (D) | (D) | (D) | (D) | b/ 204,927 |
| | First quarter | (D) | (D) | (D) | (D) | (D) | b/ 197,998 |

Continued

Table 2. Summary of Primary Production of Specified Inorganic Chemicals: 2003 and 2002
[Short tons, unless otherwise noted]

| Product code | Product description | 2003 Total production (quantity) | 2003 Total shipments, including interplant transfers: Quantity | 2003 Total shipments, including interplant transfers: Value | 2002 Total production (quantity) | 2002 Total shipments, including interplant transfers: Quantity | 2002 Total shipments, including interplant transfers: Value |
|---|---|---|---|---|---|---|---|
| 3251887121 | Aluminum chloride, anhydrous (100 percent) | (S) | (D) | (D) | (S) | (D) | (D) |
| | Fourth quarter | (D) | (D) | (D) | (S) | (D) | (D) |
| | Third quarter | (S) | (D) | (D) | (S) | (D) | (D) |
| | Second quarter | (S) | (D) | (D) | (S) | (D) | (D) |
| | First quarter | (S) | (D) | (D) | (S) | (D) | (D) |
| 3251887131 | Aluminum hydroxide, trihydrate (100 percent) | 490,505 | 538,122 | 356,644 | 393,523 | 391,958 | 163,413 |
| | Fourth quarter | 129,053 a/r/ | 141,182 | (S) a/ | 72,397 a/ | 74,550 | (S) |
| | Third quarter | 127,185 a/r/ | 139,489 | (S) a/ | 105,263 a/ | 105,058 | (S) |
| | Second quarter | r/ 121,268 a/r/ | 132,432 | (S) a/ | 123,371 a/ | 119,797 b/ | 47,951 |
| | First quarter | r/ 112,999 a/r/ | 125,019 | (S) | 92,492 a/ | 92,553 | (S) |
| | Aluminum sulfate: | | | | | | |
| 3251887151 | Commercial (17 percent aluminum oxide) 5/ | 1,059,494 | 1,015,645 | 112,364 | 1,161,595 | 1,115,359 | 134,983 |
| | Fourth quarter | a/ 256,067 a/ | 241,377 | b/ 25,930 a/ | 274,551 a/ | 257,755 a/ | 31,747 |
| | Third quarter | a/ 287,926 a/ | 281,543 | b/ 30,127 a/ | 331,575 a/ | 321,793 a/ | 45,400 |
| | Second quarter | a/ 261,833 a/ | 254,218 | b/ 29,034 a/ | 307,161 a/ | 298,173 a/ | 31,809 |
| | First quarter | b/ 253,668 a/ | 238,507 | a/ 27,273 a/ | 248,308 a/ | 237,638 a/ | 26,027 |
| 3251887161 | Iron-free (17 percent aluminum oxide) | 303,100 | 305,691 | 22,548 | 283,820 | 283,829 | 21,882 |
| | Fourth quarter | a/ 73,683 a/ | 74,047 | a/ 5,450 a/ | 70,323 a/ | 70,190 a/ | 5,410 |
| | Third quarter | a/ 82,440 a/ | 83,916 | a/ 6,028 a/ | 71,353 a/ | 71,633 a/ | 5,670 |
| | Second quarter | 72,400 a/ | 72,487 | a/ 5,462 a/ | 64,143 a/ | 64,058 a/ | 5,204 |
| | First quarter | a/ 74,577 a/ | 75,241 | a/ 5,608 a/ | 78,001 a/ | 77,948 a/ | 5,598 |
| 3251887171 | Aluminates (sodium aluminate, potassium aluminate, etc.) (100 percent) | 382,498 | 322,499 | 44,824 | 372,660 | 314,287 | 41,787 |
| | Fourth quarter | 96,496 | 83,427 | 12,571 | 94,212 | 80,480 a/ | 10,351 |
| | Third quarter | 98,980 | 84,056 | 12,623 | 99,753 | 85,257 a/ | 10,917 |
| | Second quarter | 99,363 | 85,718 | 10,622 b/ | 85,774 b/ | 69,551 b/ | 9,303 |
| | First quarter | 87,659 | 69,298 a/ | 9,008 b/ | 92,921 b/ | 78,999 b/ | 11,216 |
| | Potassium and sodium compounds: | | | | | | |
| 325188A111 | Potassium iodide (100 percent) | 337 | 313 | 4,668 | 326 | 334 | 4,659 |
| | Fourth quarter | b/ 78 | 60 | 1,011 | 77 | 73 | 909 |
| | Third quarter | (D) r/ | 76 r/ | 1,238 | (D) | 74 | 1,276 |
| | Second quarter | (D) | 89 | 1,302 | (D) | 90 | 1,208 |
| | First quarter | 101 | 88 | 1,117 | 74 | 97 | 1,266 |
| 325188A117 | Potassium pyrophosphate (tetra-potassium pyrophosphate) (anhydrous, 100 percent) | 33,942 | 33,657 | 24,240 | 36,572 | 33,166 | 20,770 |
| | Fourth quarter | a/ 8,968 a/ | 8,760 | b/r/ 7,714 | (S) | (S) b/ | 6,991 |
| | Third quarter | b/ 8,244 r/ | 8,995 | a/ 6,006 | (S) | (S) b/ | 4,813 |
| | Second quarter | b/ 8,661 | (S) | b/ 5,310 a/ | 9,104 a/ | 8,051 a/ | 4,774 |
| | First quarter | b/ 8,069 | (S) | b/ 5,210 a/ | 7,745 a/ | 6,994 a/ | 4,192 |
| 325188A124 | Potassium phosphates (100 percent by weight) | 27,779 | 28,669 | 34,834 | 31,331 | 30,311 | 25,936 |
| | Fourth quarter | a/ 7,600 a/ | 7,258 | 8,902 a/ | 9,214 a/r/ | 6,742 a/ | 7,540 |
| | Third quarter | 7,164 | (D) | (D) a/ | 6,426 a/ | 7,286 a/ | 6,509 |
| | Second quarter | 6,078 | 6,773 | 8,562 a/ | 7,804 | 8,519 | 6,572 |
| | First quarter | a/ 6,937 | (D) | (D) a/ | 7,887 | 7,764 a/ | 5,315 |
| 325188A141 | Sodium chlorate (100 percent) | 737,122 | 731,118 | 209,126 | 794,861 | 794,676 | 229,392 |
| | Fourth quarter | a/ 186,298 a/ | 186,477 | a/ 52,899 a/ | 210,860 a/ | 199,833 a/ | 56,776 |
| | Third quarter | a/ 180,957 a/ | 180,769 | a/ 51,390 a/ | 184,170 a/ | 199,536 a/ | 57,191 |
| | Second quarter | a/ 191,867 a/ | 179,467 | a/ 52,153 a/ | 189,611 a/ | 188,434 a/ | 53,697 |
| | First quarter | a/ 178,000 a/ | 184,405 | a/ 52,684 a/ | 210,220 a/ | 206,873 a/ | 61,728 |
| 325188A147 | Sodium hydrosulfide (sodium sulfhydrate (100 percent) | (D) | (D) | (D) | (D) | (D) | (D) |
| | Fourth quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | Third quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | Second quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | First quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| 325188A151 | Sodium hydrosulfite (100 percent) | (D) | (D) | (D) | (D) | (D) | (D) |
| | Fourth quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | Third quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | Second quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | First quarter | (D) | (D) | (D) | (D) | (D) | (D) |

Continued

Table 2. Summary of Primary Production of Specified Inorganic Chemicals: 2003 and 2002
[Short tons, unless otherwise noted]

| Product code | Product description | 2003 Total production (quantity) | 2003 Total shipments, including interplant transfers Quantity | 2003 Total shipments, including interplant transfers Value | 2002 Total production (quantity) | 2002 Total shipments, including interplant transfers Quantity | 2002 Total shipments, including interplant transfers Value |
|---|---|---|---|---|---|---|---|
| | Sodium phosphates: | | | | | | |
| 325188A157 | Dibasic (produced for sale) | | | | | | |
| | (100 percent) 6/ | 22,505 | 17,409 | 18,828 | 19,672 | 13,581 | 15,389 |
| | Fourth quarter | b/ 5,716 | 4,648 | 4,960 | a/ 4,227 | 3,191 | 3,773 |
| | Third quarter | b/ 5,551 | 4,768 | 5,195 | a/ 5,167 | (D) | (D) |
| | Second quarter | b/ 5,807 | 4,049 | 4,254 | a/ 5,239 | (D) | (D) |
| | First quarter | b/ 5,431 | 3,944 | 4,419 | 5,039 | (D) | (D) |
| 325188A164 | Tetrabasic (pyro) (100 percent) | (D) | (D) | (D) | (D) | (D) | (D) |
| | Fourth quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | Third quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | Second quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | First quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| 325188A167 | Meta (100 percent) | 49,938 | 41,348 | 36,828 | 51,173 | 41,777 | 41,035 |
| | Fourth quarter | 12,279 | 9,794 | 8,434 a/ | 14,377 a/ | 11,200 | 10,752 |
| | Third quarter | 11,705 a/ | 9,604 | 8,440 a/ | 13,068 a/ | 10,719 | 10,220 |
| | Second quarter | 11,351 a/ | 10,154 | 9,144 a/ | 11,287 | 10,233 | 10,016 |
| | First quarter | 14,603 a/ | 11,796 | 10,810 | 12,441 | 9,625 | 10,047 |
| 325188A171 | Acid pyro (100 percent) | 45,941 | 41,427 | 29,285 | (S) | (S) | 34,739 |
| | Fourth quarter | a/ 7,710 | a/ 7,398 | a/ 5,773 | (S) | (S) | (S) |
| | Third quarter | a/ 7,414 | a/ 7,191 | a/ 5,614 | (S) | (S) | (S) |
| | Second quarter | (S) | (S) | (S) | (S) | (S) b/r/ | 8,887 |
| | First quarter | (S) | (S) | (S) | (S) | (S) b/r/ | 8,327 |
| 325188A174 | Tripoly (100 percent) | (D) | (D) | (D) | (D) | (D) | (D) |
| | Fourth quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | Third quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | Second quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | First quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| 325188A177 | Other sodium phosphates, including mono- and tribasic | (X) | (X) | 14,976 | (X) | (X) | 13,431 |
| | Fourth quarter | (X) | (X) | 5,621 | (X) | (X) b/ | 3,179 |
| | Third quarter | (X) | (X) | 4,141 | (X) | (X) b/ | 4,154 |
| | Second quarter | (X) | (X) | 2,827 | (X) | (X) | (S) |
| | First quarter | (X) | (X) | 2,387 | (X) | (X) | (S) |
| 325188A181 | Sodium silicate (soluble silicate glass, liquid, and solid) (anhydrous) 7/ | 1,184,192 | 679,772 | 217,538 | 1,161,832 | 707,260 | 216,724 |
| | Fourth quarter | b/ 304,390 | b/ 168,218 | (S) b/ | 278,670 a/ | 183,488 b/ | 55,560 |
| | Third quarter | b/ 287,509 | b/ 166,738 | (S) b/ | 308,741 a/ | 183,694 | (S) |
| | Second quarter | b/ 304,366 | b/ 167,823 | (S) b/ | 290,958 a/ | 187,475 | (S) |
| | First quarter | b/ 287,927 | a/ 176,993 | (S) b/ | 283,463 b/ | 152,603 | (S) |
| 325188A184 | Metasilicate pentahydrate (100 percent) | 36,435 | 25,019 | 8,843 | 35,402 | 27,201 | 9,064 |
| | Fourth quarter | 8,756 | 7,197 | 2,323 | 8,392 | 7,385 | 2,372 |
| | Third quarter | 9,435 | 6,228 | 2,232 | 9,872 | 5,597 | 2,141 |
| | Second quarter | 9,343 | 5,726 | 2,121 | 8,551 | 8,049 | 2,645 |
| | First quarter | 8,901 | 5,868 | 2,167 | 8,587 | 6,170 | 1,906 |
| 325188A187 | Metasilicate anhydrous (100 percent) | 30,340 | 34,887 | 10,954 | 28,577 | 28,772 | 11,055 |
| | Fourth quarter | 7,975 | 7,141 | 2,403 | 6,232 | 7,352 | 2,442 |
| | Third quarter | 7,893 | 9,118 | 2,782 | 7,758 | 7,441 | 2,899 |
| | Second quarter | 7,024 | 9,390 | 2,868 | (D) | (D) | 2,839 |
| | First quarter | 7,448 | 9,238 | 2,901 | (D) | (D) | 2,875 |
| 325188A1A1 | Sodium sulfate (100 percent): | | | | | | |
| | High purity | 513,930 | 456,136 | 27,041 | 551,171 | 508,512 | 35,436 |
| | Fourth quarter | a/ 130,221 | b/ 102,409 | b/r/ 5,780 b/ | 145,898 b/ | 122,426 b/ | 8,473 |
| | Third quarter | a/ 129,447 | b/ 118,331 | b/r/ 7,185 b/ | 138,096 b/ | 110,505 b/ | 8,011 |
| | Second quarter | 116,076 | b/ 112,855 | b/r/ 6,802 b/ | 134,796 b/ | 153,513 b/ | 10,762 |
| | First quarter | b/ 138,186 | b/ 122,541 | b/r/ 7,274 b/ | 132,381 b/ | 122,068 b/ | 8,190 |
| 325188A1A7 | Sodium sulfite (100 percent) | 96,967 | 97,439 | 13,239 | 81,941 | 73,096 | 7,589 |
| | Fourth quarter | b/ 22,701 | (D) | (D) b/ | 22,971 | (D) | (D) |
| | Third quarter | b/ 26,043 | (D) | (D) b/ | 15,931 | (D) | (D) |
| | Second quarter | b/ 25,746 | a/ 20,302 | b/ 2,614 | (D) a/ | 16,317 | (S) |
| | First quarter | b/ 22,477 | a/ 22,546 | b/ 2,888 | (D) | (D) | (D) |
| | Other inorganic chemicals: | | | | | | |
| 325188G141 | Calcium carbonate (precipitated) (100 percent) | 2,144,304 | 2,071,792 | 269,356 | 2,172,223 | 2,115,118 | 276,281 |
| | Fourth quarter | a/ 531,376 | a/ 512,232 | a/ 65,119 a/ | 561,928 | 545,599 a/ | 70,447 |
| | Third quarter | a/ 531,324 | a/ 515,190 | a/ 66,926 a/ | 544,306 | 528,042 a/ | 69,377 |
| | Second quarter | 522,343 | 505,944 | 66,024 a/ | 531,608 | 519,637 | 67,881 |
| | First quarter | 559,261 | 538,426 | 71,287 | 534,381 | 521,840 | 68,576 |

Continued

Table 2. Summary of Primary Production of Specified Inorganic Chemicals: 2003 and 2002
[Short tons, unless otherwise noted]

| Product code | Product description | 2003 Total production (quantity) | 2003 Total shipments, including interplant transfers: Quantity | 2003 Total shipments, including interplant transfers: Value | 2002 Total production (quantity) | 2002 Total shipments, including interplant transfers: Quantity | 2002 Total shipments, including interplant transfers: Value |
|---|---|---|---|---|---|---|---|
| 325188G144 | Calcium chloride (100 percent) | 1,162,915 | 820,820 | 115,357 | 1,466,346 | 797,441 | 69,436 |
| | Fourth quarter | (D) b/ | 250,976 a/ | 37,846 b/ | 374,468 b/ | 246,307 a/ | 24,594 |
| | Third quarter | (D) b/ | 172,977 b/ | 23,301 b/ | 324,203 b/ | 168,453 a/ | 14,020 |
| | Second quarter | a/ 335,894 b/ | 186,851 b/ | 22,739 b/ | 391,600 b/ | 212,584 a/ | 16,969 |
| | First quarter | (D) b/ | 210,016 b/ | 31,471 a/ | 376,075 b/ | 170,097 a/ | 13,853 |
| 325188G147 | Calcium phosphates: Monobasic (21 percent minimum P) (100 percent) | (D) | (D) | 172,505 | (D) | 927,656 | 198,240 |
| | Fourth quarter | (D) | (D) | 44,132 | (D) | (D) | 45,228 |
| | Third quarter | (D) | (D) | 41,573 | (D) | (D) | 45,868 |
| | Second quarter | (D) | (D) | 40,696 | (D) | (D) a/ | 53,261 |
| | First quarter | (D) | (D) a/ | 46,104 | (D) | 218,749 a/ | 53,883 |
| 325188G151 | Dibasic (18.5 percent minimum P) (100 percent) | 336,582 | 323,880 | 89,028 | 405,707 | 383,143 | 148,194 |
| | Fourth quarter | 86,031 | 86,572 | 20,096 | 101,932 | 90,931 | 26,260 |
| | Third quarter | 73,192 | 77,320 b/r/ | 33,490 | 97,566 | 92,651 b/ | 40,438 |
| | Second quarter | 90,133 | 75,607 b/r/ | 32,642 | 105,873 | 93,881 b/ | 41,098 |
| | First quarter | 87,226 a/ | 84,381 a/ | 25,623 | 100,336 | 105,680 b/ | 40,398 |
| 3253124241 | Tribasic (defluorinated phosphate rock) (18.0 percent minimum P) 8/: Animal feed grade (deflourinated phosphate rock) (100 percent) | 356,986 | 383,528 | 84,783 | 483,248 | 478,938 | 116,478 |
| | Fourth quarter | 79,633 | 90,122 | 19,722 | 111,511 | 120,203 | 29,150 |
| | Third quarter | 89,789 | 99,162 a/ | 22,388 | 118,380 | 123,251 a/ | 28,374 |
| | Second quarter | 95,088 | 89,768 a/ | 20,374 | 126,326 | 122,684 a/ | 30,460 |
| | First quarter | 92,476 | 104,476 | 22,299 | 127,031 | 112,800 a/ | 28,494 |
| 325998H1E4 | Carbon, activated 9/: Granular carbons (dry weight) 10/ | 102,009 | 100,165 | 166,739 | (D) | (S) | (S) |
| | Fourth quarter | (D) a/ | 18,894 | 32,891 | (D) | (S) | (S) |
| | Third quarter | 27,547 a/ | 27,894 | 42,825 | (D) | (S) | (S) |
| | Second quarter | (D) | (S) | (S) | (D) | (S) | (S) |
| | First quarter | (D) | (S) | (S) | (D) | (S) | (S) |
| 325998H1E7 | Pulverized carbons (dry weight) | 56,043 | 100,021 | 40,235 | 66,962 | 117,943 | 49,742 |
| | Fourth quarter | (D) | (D) | (D) | (S) b/ | 27,401 b/ | 11,601 |
| | Third quarter | (D) | (D) | (D) | (S) b/ | 34,600 b/ | 14,767 |
| | Second quarter | (S) b/ | 24,812 a/ | 11,015 b/ | 16,308 | (S) b/ | 11,087 |
| | First quarter | (S) b/ | 26,563 b/ | 11,410 b/ | 14,018 | (S) b/ | 12,287 |
| 325188G181 | Hydrogen peroxide (100 percent by weight) | (S) | (S) | (S) | (S) | (S) | 163,768 |
| | Fourth quarter | (S) | (D) | (D) | (S) | (S) b/ | 42,838 |
| | Third quarter | (S) | (D) | (D) | (S) | (S) b/ | 41,714 |
| | Second quarter | (S) | (S) | (S) | (S) | (S) b/ | 41,799 |
| | First quarter | (S) | (S) | (S) | (S) | (S) b/ | 37,417 |
| 325188G184 | Iodine (100 percent) (quantity in pounds) | (D) | (D) | 34,834 | (D) | 3,206,405 | 19,193 |
| | Fourth quarter | (D) | (D) r/ | 5,691 | (D) | (D) a/ | 4,531 |
| | Third quarter | (D) | (D) | (D) | (D) | (D) a/ | 4,822 |
| | Second quarter | (D) | (D) r/ | 8,295 | (D) | 792,767 a/ | 4,758 |
| | First quarter | (D) | (D) | (D) | (D) | 816,764 a/ | 5,082 |
| 325188G187 | Ferric chloride (100 percent) | 217,682 | 217,872 | (S) | 213,212 | 218,944 | 24,173 |
| | Fourth quarter | a/ 74,672 a/r/ | 69,986 | (S) a/ | 71,895 a/ | 70,035 | (S) |
| | Third quarter | a/ 73,210 b/r/ | 74,603 | (S) a/ | 72,669 a/ | 77,368 | (S) |
| | Second quarter | a/ 69,800 b/ | 73,283 | (S) a/ | 68,648 a/ | 71,541 | (S) |
| | First quarter | a/ 64,415 a/ | 64,340 | (S) a/ | 70,973 a/ | 69,254 | (S) |
| 325188G191 | Iron oxides and hydroxides, excluding iron oxide including pigments (100 percent) | (D) | (D) | (D) | (S) | (S) | (S) |
| | Fourth quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| | Third quarter | (D) | (D) | (D) | (S) | (D) | (D) |
| | Second quarter | (D) | (D) | (D) | (S) | (S) | (S) |
| | First quarter | (D) | (D) | (D) | (S) | (S) | (S) |
| 325188G1A1 | Magnesium chloride (100 percent) | (D) | (D) | 16,217 | (D) | (D) | (D) |
| | Fourth quarter | (D) | (D) | 4,678 | (D) | (D) | (D) |
| | Third quarter | (D) | (D) | 3,867 | (D) | (D) | (D) |
| | Second quarter | (D) | (D) | (D) | (D) | (D) | 4,238 |
| | First quarter | (D) | (D) | (D) | (D) | (D) | (D) |
| 325188G1B1 | Manganese dioxide (100 percent) | 45,677 | 47,916 | 66,875 | 45,795 | 47,231 | 60,233 |
| | Fourth quarter | 9,137 | 13,428 r/ | 19,889 a/ | 12,207 a/ | 9,724 r/ | 13,332 |
| | Third quarter | 9,205 | 11,641 | 18,042 | 11,139 | 14,948 | 19,669 |
| | Second quarter | 13,543 | 11,907 | 15,080 | 10,136 | 13,549 | 16,673 |
| | First quarter | 13,792 | 10,940 | 13,864 | 12,313 | 9,010 | 10,559 |

Continued

Table 2. Summary of Primary Production of Specified Inorganic Chemicals: 2003 and 2002
[Short tons, unless otherwise noted]

| Product code | Product description | 2003 Total production (quantity) | 2003 Total shipments, including interplant transfers Quantity | | 2003 Total shipments, including interplant transfers Value | 2002 Total production (quantity) | 2002 Total shipments, including interplant transfers Quantity | | 2002 Total shipments, including interplant transfers Value |
|---|---|---|---|---|---|---|---|---|---|
| 325188G1F1 | Phosphorus oxychloride (100 percent)..... | (D) | (D) | | (D) | 29,873 | (D) | | (D) |
| | Fourth quarter..... | (D) | (D) | | (D) | (D) | (D) | | (D) |
| | Third quarter..... | (D) | (D) | | (D) | (D) | (D) | | (D) |
| | Second quarter..... | (D) | (D) | | (D) | (D) | (D) | | (S) |
| | First quarter..... | (D) | (D) | | (D) | 8,106 | (D) | | (D) |
| 325188G1F7 | Phosphorus trichloride (chloride) (100 percent)..... | (D) | (D) | | (D) | (D) | (S) | | (S) |
| | Fourth quarter..... | (D) | (D) | | (D) | (D) | (S) | | (S) |
| | Third quarter..... | (D) | (D) | | (D) | (D) | (S) | | (S) |
| | Second quarter..... | (D) | (D) | | (D) | (D) | (S) | | (S) |
| | First quarter..... | (D) | (D) | | (D) | (D) | (S) | | (S) |
| 325188G1G7 | Silicon tetrachloride (sitet) (100 percent $SiCl_4$)..... | (D) | (D) | | (D) | (D) | (S) | | (S) |
| | Fourth quarter..... | (D) | (D) | | (D) | (D) | (S) | | (S) |
| | Third quarter..... | (D) | (D) | | (D) | (D) | (S) | | (S) |
| | Second quarter..... | (D) | (D) | | (D) | (D) | (S) | | (S) |
| | First quarter..... | (D) | (D) | | (D) | (D) | (S) | | (S) |
| 325188G1K1 | Sulfur dioxide (100 percent)..... | 82,330 | 74,870 | | 11,072 | 89,958 | 79,095 | | 11,946 |
| | Fourth quarter..... | 20,870 | 18,004 | b/ | 2,757 | 23,696 | 20,721 | a/ | 3,262 |
| | Third quarter..... | 22,042 | 20,586 | a/ | 3,110 | 27,142 | 24,479 | a/ | 3,555 |
| | Second quarter..... | 20,067 | 18,266 | b/ | 2,542 | 21,814 | 18,680 | a/ | 2,577 |
| | First quarter..... | 19,351 | 18,014 | a/ | 2,663 | 17,306 | 15,215 | a/ | 2,552 |
| 325188G1M1 | Zinc sulfate (100 percent)..... | (D) | (D) | | 19,417 | 31,665 | (D) | | 19,964 |
| | Fourth quarter..... | (D) | (D) | | 4,457 | (D) | (D) | | 3,778 |
| | Third quarter..... | (D) | (D) | | (D) | 9,430 | (D) | | 4,760 |
| | Second quarter..... | (D) | (D) | | 4,652 | (D) | (D) | | (D) |
| | First quarter..... | (D) | (D) | | (D) | (D) | (D) | | (D) |
| 3251311100 | Titanium dioxide (composite and pure) (commodity weight) 11/..... | 1,567,955 | (X) | | (X) | 1,553,513 | (X) | | (X) |
| | Fourth quarter..... | 403,121 | (X) | | (X) | 393,156 | (X) | | (X) |
| | Third quarter..... | 381,574 | (X) | | (X) | 395,943 | (X) | | (X) |
| | Second quarter..... | 402,339 | (X) | | (X) | 400,633 | (X) | | (X) |
| | First quarter..... | 380,921 | (X) | | (X) | 363,781 | (X) | | (X) |

D Withheld to avoid disclosing data for individual companies. r/Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

1/Production includes amounts liquefied.
2/Liquid production figures represent total production, including quantities later evaporated to solid caustic.
3/Source: U.S. Geological Survey. Quantity reported in thousands of short tons.
4/Includes production from salt and acid.
5/Excludes quantities produced and consumed in municipalities.
6/Represents quantities produced only for sale or interplant transfer.
7/Excludes amounts produced and consumed in making meta, ortho, and sesquisilicates.
8/Includes animal feed, but excludes other grades and superphosphate or other fertilizer materials.
9/Excludes reactivated carbon.
10/Includes pelleted carbon.
11/Represents total stocks of producing companies, including amounts held at locations other than producing plants.

Note: Percent of estimation of each item is indicated as follows: a/10 to 25 percent of this item is estimated. b/26 to 50 percent of this item is estimated. c/Over 50 percent of this item is estimated.

Continued

Table 3. Production, Exports, Imports, and Apparent Consumption of Selected Inorganic Chemicals: 2003 and 2002
[Quantity in metric tons]

| Product code | Product description | Year | Production (quantity) | Exports of domestic merchandise 1/ | Imports for consumption 2/ | Apparent consumption 3/ (quantity) | Percent imports to apparent consumption (quantity) |
|---|---|---|---|---|---|---|---|
| 3251811111 | Chlorine gas | 2003 | 10,361,323 | 15,360 | 412,116 | 10,758,079 | 3.8 |
| | | 2002 | 11,437,676 | 18,566 | 409,695 | 11,828,805 | 3.5 |
| 3251814111 | Sodium hydroxide, total liquid (all processes) | 2003 | 8,795,572 | 3,090,651 | 1,127,456 | 6,832,377 | 16.5 |
| | | 2002 | 9,461,025 | 2,773,558 | 1,065,056 | 7,752,523 | 13.7 |
| 3251817111 | Potassium hydroxide, liquid | 2003 | 470,984 | 182,186 | 19,290 | 308,088 | 6.3 |
| | | 2002 | 469,817 | 41,128 | 24,678 | 453,367 | 5.4 |
| 3251817131 | Finished sodium bicarbonate | 2003 | 540,308 | 61,048 | 15,724 | 494,984 | 3.2 |
| | | 2002 | 535,344 | 62,947 | 14,288 | 486,685 | 2.9 |
| 3251884125, 131 | Hydrochloric acid | 2003 | 4,180,522 | 61,039 | 106,794 | 4,226,277 | 2.5 |
| | | 2002 | 4,027,648 | 54,761 | 96,744 | 4,069,631 | 2.4 |
| 3313110100 | Aluminum oxide | 2003 | (D) | 1,046,160 | 2,160,909 | (D) | (D) |
| | | 2002 | (D) | 1,217,045 | 2,859,702 | (D) | (D) |
| 3251887121 | Aluminum chloride | 2003 | (S) | 14,806 | 883 | (S) | (S) |
| | | 2002 | (S) | 13,081 | 1,300 | (S) | (S) |
| 3251887131 | Aluminum hydroxide, trihydrate | 2003 | 444,979 | 65,182 | 231,675 | 611,472 | 37.9 |
| | | 2002 | 356,998 | 77,390 | 231,279 | 510,887 | 45.3 |
| 3251887151 | Aluminum sulfate (commercial) | 2003 | 961,157 | 9,213 | 5,359 | 957,303 | 0.6 |
| | | 2002 | 1,053,781 | 6,717 | 5,211 | 1,052,275 | 0.5 |
| 3251887171 | Aluminates | 2003 | 346,996 | 20,033 | 17,159 | 344,122 | 5.0 |
| | | 2002 | 338,072 | 17,094 | 17,063 | 338,041 | 5.0 |
| 325188A111 | Potassium iodide | 2003 | 306 | 67 | 862 | 1,101 | 78.3 |
| | | 2002 | 296 | 84 | 631 | 843 | 74.9 |
| 325188A124 | Potassium phosphate | 2003 | 25,201 | 1,953 | 15,602 | 38,850 | 40.2 |
| | | 2002 | 28,423 | 2,068 | 16,645 | 43,000 | 38.7 |
| 325188A141 | Sodium chlorate | 2003 | 668,706 | 20,831 | 561,813 | 1,209,688 | 46.4 |
| | | 2002 | 721,086 | 39,828 | 528,239 | 1,209,497 | 43.7 |
| 325188A174 | Sodium phosphate tripoly | 2003 | (D) | 10,900 | 109,147 | (D) | (D) |
| | | 2002 | (D) | 13,546 | 80,074 | (D) | (D) |
| 325188A181 | Sodium silicates (other than metasilicates) | 2003 | 1,074,281 | 49,082 | 28,279 | 1,053,478 | 2.7 |
| | | 2002 | 1,053,996 | 18,086 | 35,378 | 1,071,288 | 3.3 |
| 325188A184, 187 | Sodium metasilicates | 2003 | 60,577 | 17,558 | 480 | 43,499 | 1.1 |
| | | 2002 | 58,041 | 24,362 | 1,213 | 34,892 | 3.5 |
| 325188A1A7 | Sodium sulfite | 2003 | 87,967 | 25,815 | 17,404 | 79,556 | 21.9 |
| | | 2002 | 74,336 | 23,423 | 11,611 | 62,524 | 18.6 |
| 325188G141 | Calcium carbonate (precipitated) | 2003 | 1,945,280 | 70,496 | 35,684 | 1,910,468 | 1.9 |
| | | 2002 | 1,970,608 | 74,419 | 75,841 | 1,972,030 | 3.8 |
| 325188G144 | Calcium chloride | 2003 | 1,054,979 | 115,237 | 256,367 | 1,196,109 | 21.4 |
| | | 2002 | 1,330,247 | 132,111 | 197,414 | 1,395,550 | 14.1 |
| 325998H1E4, 1E7 | Carbon activated (granular and pulverized) | 2003 | 143,382 | 51,462 | 56,867 | 148,787 | 38.2 |
| | | 2002 | (D) | 48,044 | 52,920 | (D) | (D) |
| 325188G181 | Hydrogen peroxide | 2003 | (S) | 42,130 | 46,253 | (S) | (S) |
| | | 2002 | (S) | 51,356 | 61,125 | (S) | (S) |
| 325188G184 | Iodine | 2003 | (D) | 1,225 | 5,744 | (D) | (D) |
| | | 2002 | (D) | 1,429 | 6,187 | (D) | (D) |
| 325188G191 | Iron oxides and hydroxides | 2003 | (D) | 48,781 | 2,884 | (D) | (D) |
| | | 2002 | (S) | 44,423 | 6,922 | (S) | (S) |

Continued

Table 3. Production, Exports, Imports, and Apparent Consumption of Selected Inorganic Chemicals: 2003 and 2002
[Quantity in metric tons]

| Product code | Product description | Year | Production (quantity) | Exports of domestic merchandise 1/ | Imports for consumption 2/ | Apparent consumption 3/ (quantity) | Percent imports to apparent consumption (quantity) |
|---|---|---|---|---|---|---|---|
| 325188G1A1 | Magnesium chloride | 2003 | (D) | 8,153 | 60,406 | (D) | (D) |
| | | 2002 | (D) | 4,574 | 20,127 | (D) | (D) |
| 325188G1B1 | Manganese dioxide | 2003 | 41,437 | 4,466 | 49,354 | 86,325 | 57.2 |
| | | 2002 | 41,545 | 3,624 | 36,657 | 74,578 | 49.2 |
| 325188G1F1, 1F7 | Phosphorous, oxychloride and trichloride | 2003 | (D) | 347 | 56 | (D) | (D) |
| | | 2002 | (D) | 932 | 82 | (D) | (D) |
| 325188G1K1 | Sulfur dioxide | 2003 | 74,689 | 7,937 | 54,848 | 121,600 | 45.1 |
| | | 2002 | 81,609 | 2,435 | 59,265 | 138,439 | 42.8 |
| 325188G1M1 | Zinc sulfate | 2003 | (D) | 2,311 | 25,803 | (D) | (D) |
| | | 2002 | 28,726 | 2,898 | 20,136 | 45,964 | 43.8 |
| 3251311100 | Titanium dioxide (composite and pure) | 2003 | 1,422,425 | 584,436 | 240,349 | 1,078,338 | 22.3 |
| | | 2002 | 1,409,323 | 539,835 | 231,176 | 1,100,664 | 21.0 |

D Withheld to avoid disclosing data for individual companies. S Data does not meet publication standards.

1/Source: Census Bureau report EM 545, U.S. Exports (see Table 4).
2/Source: Census Bureau report IM 145, U.S. Imports for Consumption (see Table 4).
3/Apparent consumption represents new domestic supply and is derived by subtracting exports from the total of manufacturers' production plus imports.

Continued

Table 4. Comparison of North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes, and HTUSA Import Codes: 2003

| Product code | Product description | Export code 1/ | Import code 2/ |
|---|---|---|---|
| 3251881111 | Chlorine gas | 2801.10.0000 | 2801.10.0000 |
| 3251814111 | Sodium hydroxide, total liquid (all processes) | 2815.11.0000<br>2815.12.0000 | 2815.11.0000<br>2815.12.0000 |
| 3251817111 | Potassium hydroxide, liquid | 2815.20.0050<br>2815.20.0090 | 2815.20.0050<br>2815.20.0090 |
| 3251817131 | Finished sodium bicarbonate | 2836.30.0000 | 2836.30.0000 |
| 3251884125, 131 | Hydrochloric acid | 2806.10.0000 | 2806.10.0000 |
| 3313110100 | Aluminum oxide | 2818.20.0000 | 2818.20.0000 |
| 3251887121 | Aluminum chloride | 2827.32.0000 | 2827.32.0000 |
| 3251887131 | Aluminum hydroxide, trihydrate | 2818.30.0000 | 2818.30.0000 |
| 3251887151 | Aluminum sulfate (commercial) | 2833.22.0000 | 2833.22.0000 |
| 3251887171 | Aluminates | 2841.10.0000 | 2841.10.0000 |
| 325188A111 | Potassium iodide | 2827.60.2000 | 2827.60.2000 |
| 325188A124 | Potassium phosphate | 2835.24.0000 | 2835.24.0000 |
| 325188A141 | Sodium chlorate | 2829.11.0000 | 2829.11.0000 |
| 325188A174 | Sodium phosphate tripoly | 2835.31.0000 | 2835.31.0000 |
| 325188A181 | Sodium silicates (other than metasilicates) | 2839.19.0000 | 2839.19.0000 |
| 325188A184, 187 | Sodium metasilicates | 2839.11.0000 | 2839.11.0000 |
| 325188A1A7 | Sodium sulfite | 2832.10.0000 | 2832.10.0000 |
| 325188G141 | Calcium carbonate (precipitated) | 2836.50.0000 | 2836.50.0000 |
| 325188G144 | Calcium chloride | 2827.20.0000 | 2827.20.0000 |
| 325998H1E4, 1E7 | Carbon activated (granular and pulverized) | 3802.10.0000 | 3802.10.0000 |
| 325188G181 | Hydrogen peroxide | 2847.00.0000 | 2847.00.0000 |
| 325188G184 | Iodine | 2801.20.0000 | 2801.20.0000 |
| 325188G191 | Iron oxides and hydroxides | 2821.10.0050 | 2821.10.0050 |
| 325188G01A1 | Magnesium chloride | 2827.31.0000 | 2827.31.0000 |

Continued

Table 4. Comparison of North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes, and HTUSA Import Codes: 2003

| Product code | Product description | Export code 1/ | Import code 2/ |
|---|---|---|---|
| 325188G01B1 | Manganese dioxide | 2820.10.0000 | 2820.10.0000 |
| 325188G1F1, 1F7 | Phosphorous, oxychloride and trichloride | 2812.10.5010 | 2812.10.5010 |
| 325188G1K1 | Sulfur dioxide | 2811.23.0000 | 2811.23.0000 |
| 325188G1M1 | Zinc sulfate | 2833.26.0000 | 2833.26.0000 |
| 3251311100 | Titanium dioxide (composite and pure) | 2823.00.0000<br>3206.11.0000<br>3206.19.0000 | 2823.00.0000<br>3206.11.0000<br>3206.19.0000 |

1/Source: 2003 edition, Harmonized System-based Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.

2/Source: Harmonized Tariff Schedule of the United States, Annotated (2003).

Continued

# Appendix.
# General CIR Survey Information, Explanation of General Terms and Historical Note

## GENERAL

The CIR program has been providing monthly, quarterly, and annual measures of industrial activity for many years. Since 1904, with its cotton and fats and oils surveys, the CIR program has formed an essential part of an integrated statistical system involving the quinquennial economic census, manufacturing sector, and the annual survey of manufactures. The CIR surveys, however, provide current statistics at a more detailed product level than either of the other two statistical programs.

The primary objective of the CIR program is to produce timely, accurate data on production and shipments of selected products. The data are used to satisfy economic policy needs and for market analysis, forecasting, and decision making in the private sector. The product-level data generated by these surveys are used extensively by individual firms, trade associations, and market analysts in planning or recommending marketing and legislative strategies, particularly if their industry is significantly affected by foreign trade. Although production and shipments information are the two most common data items collected, the CIR program collects other measures also such as inventories, orders, and consumption. These surveys measure manufacturing activity in important commodity areas such as textiles and apparel, chemicals, primary metals, computer and electronic components, industrial equipment, aerospace equipment, and consumer goods.

The CIR program uses a unified data collection, processing, and publication system. The U.S. Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic census, manufacturing sector. The manufacturing sector provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is too large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. The CIR program includes a group of mandatory and voluntary surveys. Typically the monthly and quarterly surveys are conducted on a voluntary basis. Those companies that choose not to respond to the voluntary surveys are required to submit a mandatory annual counterpart corresponding to the more frequent survey.

## NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS), 1997

The adoption of the North American Industry Classification System (NAICS) in the 1997 Economic Census has had a major impact on the comparability of current and historic data. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those that left manufacturing are logging and portions of publishing. Prominent among the industries that came into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. The net effect of the classification changes are such that if the 1997 value of shipments data for all manufacturers were tabulated on an SIC basis, it would be approximately 3 percent higher.

Listed below are the NAICS sectors:

21 Mining
22 Utilities
23 Construction
31-33 Manufacturing
42 Wholesale Trade
44-45 Retail Trade
48-49 Transportation and Warehousing
51 Information
52 Finance and Insurance
53 Real Estate and Rental and Leasing
54 Professional, Scientific, and Technical Services
55 Management of Companies and Enterprises
56 Administrative and Support and Waste Management and Remediation Services
61 Educational Services
62 Health Care and Social Assistance
71 Arts, Entertainment, and Recreation
72 Accommodation and Food Services
81 Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

**FUNDING**

The Census Bureau funds most of the surveys. However, a number of surveys are paid for either fully or partially by other Federal Government agencies or private trade associations. A few surveys are mandated, but all are authorized by Title 13 of the United States Code.

**RELIABILITY OF DATA**

Survey error may result from several sources including the inability to obtain information about all cases in the survey, response errors, definitional difficulties, differences in the interpretation of questions, mistakes in recording or coding the reported data, and other errors of collection, response, coverage, and estimation. These nonsampling errors also occur in complete censuses. Although no direct measurement of the biases due to these nonsampling errors has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

A major source of bias in the published estimates is the imputing of data for nonrespondents, for late reporters, and for data that fail logic edits. Missing figures are imputed based on period-to-period movements shown by reporting firms. A figure is considered to be an impute if the value was not directly reported on the questionnaire, directly derived from other reported items, directly available from supplemental sources, or obtained from the respondent during the analytical review phase. Imputation generally is limited to a maximum of 10 percent for any one data cell. Figures with imputation rates greater than 10 percent are suppressed or footnoted. The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse, because the actual yearly movements for nonrespondents may or may not closely agree with the imputed movements. The range of difference between the actual and imputed figures is assumed to be small. The degree of uncertainty regarding the accuracy of the published data increases as the percentage of imputation increases. Figures with imputation rates above 10 percent should be used with caution.

**DATA REVISIONS**

Statistics for previous years may be revised as the result of corrected figures from respondents, late reports for which imputations were originally made, or other corrections. Data that have been revised by more than 5 percent from previously published data are indicated by footnotes.

**DISCLOSURE**

The Census Bureau collects the CIR data under the authority of Title 13, United States Code, which specifies that the information can only be used for statistical purposes and cannot be published or released in any manner that would identify a person, household, or establishment. "D" indicates that data in the cell have been suppressed to avoid disclosure of information pertaining to individual companies.

**EXPLANATION OF GENERAL TERMS**

**Capacity.** The maximum quantity of a product that can be produced in a plant in 1 day if operating for 24 hours. Includes the capacity of idle plants until the plant is reported to be destroyed, dismantled, or abandoned.

**Consumption.** Materials used in producing or processing a product or otherwise removing the product from the inventory.

**Exports.** Includes all types of products shipped to foreign countries, or to agents or exporters for reshipment to foreign countries.

**Gross shipments.** The quantity or value of physical shipments from domestic establishments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale or use. Shipments of products purchased for resale are omitted. Shipments of products made under toll arrangements are included.

**Interplant transfers.** Shipments to other domestic plants within a company for further assembly, fabrication, or manufacture.

**Inventories.** The quantity or value of finished goods, work in progress, and materials on hand.

**Machinery in place.** The number of machines of a particular type in place as of a particular date whether the machinery was used for production, prototype, or sampling, or was idle. Machinery in place includes all machinery set up in operating positions.

**Net receipts.** Derived by subtracting the materials held at the end of the previous month from the sum of materials used during the current month.

**Production.** The total volume of products produced, including: products sold; products transferred or added to inventory after adjustments for breakage, shrinkage, and obsolescence, plus any other inventory adjustment; and products that undergo further manufacture at the same establishment.

**Quantities produced and consumed.** Quantities of each type of product produced by a company for internal consumption within that same company.

**Quantity and value of new orders.** The sales value of orders received during the current reporting period for products and services to be delivered immediately or at some future date. Also represents the net sales value of contract change documents that increase or decrease the sales value of the orders to which they are related, when the parties concerned are in substantial agreement as to the amount involved. Included as orders are only those that are supported by binding legal documents such as signed contracts or letter contracts.

**Quantity and value of shipments.** The figures on quantity and value of shipments represent physical shipments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale. The value represents the net sales price, f.o.b. plant, to the customer or branch to which the products are shipped, net of discounts, allowances, freight charges, and returns. Shipments to a company's own branches are assigned the same value as comparable appropriate allocation of company overhead and profit. Products bought and resold without further manufacture are excluded.

**Stocks**. Total quantity of ending finished inventory.

**Unfilled orders (backlog).** Calculated by adding net new orders and subtracting net sales from the backlog at the end of the preceding year.

**HISTORICAL NOTE**

Data on inorganic chemicals have been collected by the Census Bureau since 1941. Historical data may be obtained from Current Industrial Reports (called Facts for Industry before 1959) available at your local Federal Depository Library.